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REMARKS

Claims 4-19 are pending. Claims 1-3 are cancelled without prejudice or disclaimer.

No new subject matter has been added to the specification or claims.

Claims 1-19 were rejected under 35 U.S.C. §102(e) over U.S. Patent no. 7,031,025 to He et al. This rejection is respectfully traversed in view of the amended claims.

In order to sustain a §102 rejection of pending independent claims 4 and 16, each and every feature of the claims must be taught by the reference.

Both the current application and He describe a frequency modulation technique, such as error diffusion, that is capable of rendering frequency modulation halftone dots of which the size can vary. The method disclosed by He essentially consists of the following steps (see also "He", Fig. 3 and Fig. 5):

- convert the pixels of an input image having a first resolution into a dispersed distribution of halftone dots (108 in Fig. 3) using error diffusion;
- modulate the area of the resulting halftone dots as a function of the input pixel value (110 in Fig. 3) by converting them into a pulse width that is defined at a second resolution that corresponds to the resolution of the output image that is to be printed and that is higher than the first resolution; and
- optionally cluster two halftone dots into one clustered halftone dot by shifting one of the halftone dots next to the other (column 7, lines 12-15).

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The above described method of He is different from the currently amended claims 4 and 16 in which all the error diffusion steps (i.e. the steps of modifying an input pixel by adding a portion to it, quantizing the modified pixel, calculating and diffusing the resulting quantization error) take place at the resolution of the output image itself and not at a resolution that is lower than the output image as taught and disclosed by He.

Attached to this response is an Information Disclosure Statement. A fee of \$180.00 in accordance with 37 C.F.R. §1.17(p) is due since this Information Disclosure Statement is being filed after a first Office Action and after three months of filing the application, but before a Final Office Action.

U. S. Patent no. 5,055,942 to Levien discloses a frequency modulation technique that allows the variation of dot sizes used in producing an image (Levien, column 2 lines 35-38). Levien uses an error diffusion technique which operates at the resolution of a marking device (Levien, claim 1) and as a result, clusters of marking indicia can occur at an arbitrary position. Levien also teaches the use of an "hysteresis" in the error diffusion scheme which has the effect that the algorithm produces sequences of markings having the same color (before the color of the markings switches again).

Claims 4 and 16 have been redrafted as independent claims and slightly reworded for clarity to also distinguish over Levien. The distinctions between Levien and the amended independent claims 4 and 16 include:

- in Levien, every quantization step of the error diffusion algorithm involves selecting a value for only ONE output pixel (Levien, Fig. 8A, 823) whereas

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- in the amended claim 4 of the current application every quantization step involves selecting a "pixel value combination of a cluster of pixels".

This means that the mechanisms for obtaining clustering in the error diffusion algorithm of Levien versus the current invention are completely different since Levien uses hysteresis, whereas in the current application a cluster of pixels is "imposed" as part of the quantization step. Since Levien does not include a step of (as claim 4) "determining for said modified input pixel value a quantization set consisting of quantization values, each quantization value corresponding to setting an available output pixel value combination of a cluster of pixels", then pending independent claim 4 is novel over the prior art teachings by Levien.

The prior art made of record and not relied upon has been reviewed but is not considered material to the patentability of the invention.

Please charge the \$180.00 IDS fee, plus any other fees due to Deposit Account No. 13-3377 under this general authorization.

It should be noted that the above arguments are directed towards certain patentable distinctions between the claims and the prior art cited. However, the patentable distinctions between the pending claims and the prior art cited are not necessarily limited to those discussed above.

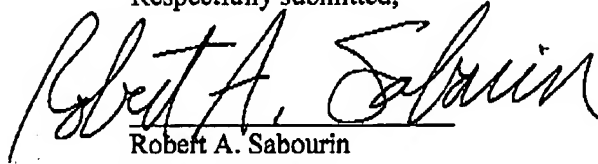
In view of the foregoing remarks and amendments, it is respectfully submitted that each rejection of the Office Action has been addressed and overcome so that this application is now in condition for allowance. The Examiner is respectfully requested to reconsider the application, withdraw the rejections and/or objections, and pass the application to issue. Should

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questions arise during examination, the Examiner is welcome to contact the applicant's attorney as listed below.

Respectfully submitted,



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